U.S. Department of Energy
Office of River Protection
P.O. Box 450, MSIN H6-60
Richland, Washington 99352

0073774

AUG 2 3 2007

07-ESQ-140

Ms. Jane A. Hedges, Program Manager
Nuclear Waste Program
State of Washington
Department of Ecology
3100 Port of Benton Blvd.
Richland, Washington 99354

RECEIVED
AUG 2 4 2007
EDMC

Dear Ms. Hedges:

SUBMITTAL OF HANFORD FACILITY RESOURCE CONSERVATION AND RECOVERY ACT (RCRA) PERMIT MODIFICATION NOTIFICATION FORM 24590-LAW-PCN-ENV-06-012

Reference: WA7890008967, "Dangerous Waste Portion of the Hanford Facility Resource Conservation and Recovery Act Permit for the Treatment, Storage, and Disposal of Dangerous Waste, Part III, Operating Unit 10, 'Waste Treatment and Immobilization Plant.'"

This letter transmits Hanford Facility RCRA Permit Modification Notification Form 24590-LAW-PCN-ENV-06-012, Attachment 1, for the Washington State Department of Ecology (Ecology) review and approval. The form describes a requested Class [1] 1 modification to the Reference. A Bechtel National, Inc. (BNI) certification statement is provided in Attachment 2.

Permit Modification Notification Permit Change Notice (PCN) Form 24590-LAW-PCN-ENV-06-012 updates the Independent Qualified Registered Professional Engineer (IQRPE) Report for the following Low-Activity Waste (LAW) Feed Process (LFP) system vessels and their appurtenances, located in cells L-0123/L-0124 respectively, at Elevation 2 ft-0 in. in the LAW Vitrification Building. The report addresses two LFP Melter Feed Prep Vessels (LFP-VSL-00001/3) and two LFP Melter Feed Vessels (LFP-VSL-00002/4) found in Appendix 9.11 of the Reference. A one-to-one correlation between the previous permit and current versions of the IQRPE report drawings does not exist. The PCN form briefly describes potential permit affecting changes (based on engineering judgment) between the current and previous revisions of the IQRPE report in a summary format. Applicable design and field changes are also summarized on the PCN form.

Ecology was provided an opportunity to review the modification notification form and the associated information and comments were dispositioned.

If you have any questions, please contact me, or your staff may contact Lori A. Huffman, Office of Environmental Safety and Quality, (509) 376-0104.

Sincerely,

Shirley J. Olinger, Acting Manager
Office of River Protection

ESQ:LAH

Attachments: (2)

cc w/attachs:
Administrative Record
BNI Correspondence
Environmental Portal, LMSI

cc electronic:
W. S. Elkins, BNI
B. G. Erlandson, BNI
P. A. Fisher, BNI
J. S. Hill, BNI
S. Murdock, BNI
P. Peistrup, BNI
D. Robertson, BNI
B. Becker-Khaleel, Ecology (AND HARD COPY)
E. A. Fredenburg, Ecology
T. Gao, Ecology
A. A. Hamar, Ecology
S. A. Thompson, FHI
A. C. McKarns, RL
D. J. Sommer, SCS

cc w/o attachs:
D. A. Klein, BNI
J. Cox, CTUIR
S. Harris, CTUIR
L. Cusack, Ecology
S. L. Dahl, Ecology
G. P. Davis, Ecology
G. Bohnee, NPT
K. Niles, Oregon Energy
R. Jim, YN

Attachment 1
07-ESQ-140

Hanford Facility RCRA Permit Modification Notification
Form 24590-LAW-PCN-ENV-06-012

Quarter Ending September 30, 2007

24590-LAW-PCN-ENV-06-012

Hanford Facility RCRA Permit Modification Notification Form

Part III, Operating Unit 10

Waste Treatment and Immobilization Plant

Index

Submitted by Co-Operator:

D. A. Klein — 8/7/07 Date

Reviewed by ORP Program Office:

S. J. Olinger — 8/22/07 Date

Quarter Ending September 30, 2007

24590-LAW-PCN-ENV-06-012

Hanford Facility RCRA Permit Modification Notification Form	
Unit: **Waste Treatment and Immobilization Plant**	Permit Part & Chapter: **Part III, Operating Unit 10**

Description of Modification:

The purpose of this modification is to update the Integrity Assessment of the Low Activity Waste (LAW) Melter Feed Process System (LFP) Elevation 2'-0" (24590-101-SC-HXYG-0074-03-00002, REV. 00A) currently located in Appendix 9.11 of the Dangerous Waste Permit (DWP).

Appendix 9.11			
Replace:	24590-CM-HC4-HXYG-0074-03-00002, Rev 00A	With:	CCN: 139507, AREVA-IA-100, Rev.0; Low-Activity Waste (LAW) Melter Feed Process (LFP) System; Melter Feed Prep Vessels (LFP-VSL-00001/3) and Melter Feed Vessels (LFP-VSL-00002/4)

This modification requests Ecology approval and incorporation into the permit the above mentioned integrity assessment report. The report has been updated by the Independent Qualified Registered Professional Engineer (IQRPE). The report reflects the IQRPE's review of the following final design documents:

- Mechanical Data Sheets, Facility, Vendor Fabrication Drawings, Specifications, Drawings, and Mechanical Data Sheets produced in accordance with References:
  - ASME Boiler and Pressure Vessel Code (BPV), Section VIII, Division 1, Rules for Construction of Pressure Vessels, American Society of Mechanical Engineers
  - UBC 1997, Uniform Building Code, International Conference of Building Officials
  - AISC Manual of Steel Construction, Allowable Stress Design, American Institute of Steel Construction
- 24590-CM-POA-MVA0-00002-02-03, Rev. 00F, Design Calculations for LFP-VSL-00001 and LFP-VSL-00003
- 24590-CM-POA-MVA0-00002-02-01, Rev. 00E, Design Calculations for LFP-VSL-00002 and LFP-VSL-00004.

For each item of "Information Assessed" in the integrity assessment report, the items listed under the "Source of Information" column were reviewed and found to furnish adequate design controls and requirements to ensure the design fully satisfies the requirements of Washington Administrative Code, WAC-173-303-640, "Tank Systems," *Dangerous Waste Regulations*.

WAC 173-303-830 Modification Class: [1] [2]	Class 1	Class [1]1	Class 2	Class 3
Please mark the Modification Class:		X		

[1] Class 1 modifications requiring prior Agency approval.

[2] If the proposed modification does not match any modification listed in WAC 173-303-830 Appendix I, then the proposed modification should automatically be given a Class 3 status. This status may be maintained by the Department of Ecology, or down graded to a Class '1, if applicable.

Quarter Ending September 30, 2007

24590-LAW-PCN-ENV-06-012

Enter Relevant WAC 173-303-830, Appendix I Modification citation number: N/A Enter wording of WAC 173-303-830, Appendix I Modification citation: In accordance with WAC 173-303-830(4)(d)(i), this modification notification is requested to be reviewed and approved as a Class [1]1 modification. WAC 173-303-830(4)(d)(ii)(A) states, "Class 1 modifications apply to minor changes that keep the permit current with routine changes to facility or its operation. These changes do not substantially alter the permit conditions or reduce the capacity of the facility to protect human health or the environment. In the case of Class 1 modifications, the director may require prior approval."	
Modification Approved: ☐ Yes ☐ No (state reason for denial) Reason for denial:	Reviewed by Ecology: B. Becker-Khaleel Date

AREVA

139507

AREVA-07-074

Ms. Anne Weldon
Subcontracts
Bechtel National, Inc.
2435 Stevens Center Place
Richland, Washington 99354

July 31, 2007

Dear Ms. Weldon:

BECHTEL NATIONAL, INC. CONTRACT NO. 24590-CM-HC4-HXYG-00211 - STRUCTURAL INTEGRITY ASSESSMENT OF THE LOW ACTIVITY WASTE (LAW) MELTER FEED PROCESS (LFP) SYSTEM MELTER FEED PREP VESSELS (LFP-VSL-00001/3) AND MELTER FEED VESSELS (LFP-VSL-00002/4) (AREVA-IA-100, REV. 0)

The integrity assessment has been completed per the contract requirements and is enclosed for your use. The assessment found that the design is sufficient to ensure that the vessels are adequately designed and will have sufficient structural strength, compatibility with the waste(s) to be processed/stored/treated, and corrosion protection to ensure that they will not collapse, rupture, or fail.

If you have any questions, please feel free to contact Ruben Mendoza at (509) 372-2684.

Sincerely,

M. D. Rickenbach, Director
Engineering & Services
AREVA NC Inc.
Richland

llm

Enclosure

cc: D. C. Pfluger MS 5-L w/enclosure (2)

AREVA NC INC.

2425 Stevens Center Place, Second Floor, Richland, Washington 99354 - P.O. Box 840, Richland, Washington 99352
Tel.: 509 372 8256 - Fax: 509 372 3169 - www.areva.com

STRUCTURAL INTEGRITY ASSESSMENT FOR LOW ACTIVITY WASTE (LAW) MELTER FEED PROCESS (LFP) SYSTEM MELTER FEED PREP VESSELS (LFP-VSL-00001/3) AND MELTER FEED VESSELS (LFP-VSL-00002/4)

Please note that source, special nuclear and byproduct materials, as defined in the Atomic Energy Act of 1954 (AEA), are regulated at the U.S. Department of Energy (DOE) facilities exclusively by DOE acting pursuant to its AEA authority. DOE asserts, that pursuant to the AEA, it has sole and exclusive responsibility and authority to regulate source, special nuclear, and byproduct materials at DOE-owned nuclear facilities. Information contained herein on radionuclides is provided for process description purposes only.

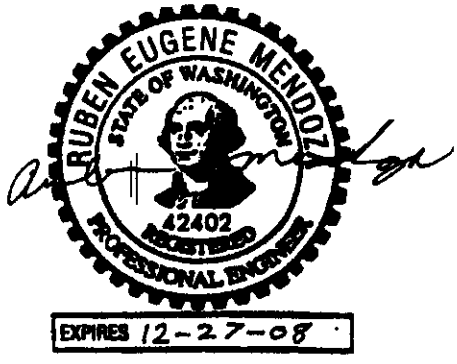
IQRPE REVIEW
FOR
LOW ACTIVITY WASTE (LAW) MELTER FEED PROCESS (LFP) SYSTEM MELTER FEED PREP VESSELS (LFP-VSL-00001/3) AND MELTER FEED VESSELS (LFP-VSL-00002/4)

"I, Ruben E. Mendoza, have reviewed, and certified a portion of the design of a new tank system or component located at the Hanford Waste Treatment Plant, owned/operated by Department of Energy, Office of River Protection, Richland, Washington. My duties were independent review of the current design for the Low-Activity Waste (LAW) Facility Melter Feed Process (LFP) System Melter Feed Prep Vessels (LFP-VSL-00001/3) and Melter Feed Vessels (LFP-VSL-00002/4) as required by the Washington Administrative Code, *Dangerous Waste Regulations*, Section WAC-173-303-640(3) (a) through (g) applicable components."

"I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment."

The documentation reviewed indicates that the design fully satisfies the requirements of the WAC.

The attached review is nine (9) pages numbered one (1) through nine (9).



Signature

7-31-07
Date

Scope	Scope of this Integrity Assessment	This integrity assessment includes the following LFP system vessels and their appurtenances, located in cells L-0123/L-0124 respectively, at Elevation 2'-0" in the LAW Vitrification Building: 1. Two LFP Melter Feed Prep Vessels (LFP-VSL-00001/3), 2. Two LFP Melter Feed Vessels (LFP-VSL-00002/4).
References	Material Requisition, Specifications, and System Description	Material Requisition (MR): 24590-CM-MRA-MVA0-00002, Rev. 2 (including Supplement Nos. S0013, S0014, and S0015 to Rev. 2), Pressure Vessels, Stainless Steel, Shop Fabricated, Medium (N026)(MS005). Specifications: The following Specifications with their respective revision and Specification Change Notices (SCNs) are listed in the above listed Material Requisition: 24590-WTP-3PS-MV00-T0001, Engineering Specification for Pressure Vessel Design and Fabrication; 24590-WTP-3PS-MVB2-T0001, Engineering Specification for Welding of Pressure Vessels, Heat Exchangers and Boilers; 24590-WTP-3PS-G000-T0001, General Specification for Supplier Quality Assurance Program Requirements; 24590-WTP-3PS-G000-T0002, Engineering Specification for Positive Material Identification (PMI); 24590-WTP-3PS-G000-T0003, Engineering Specification for Packaging, Handling, and Storage Requirements; 24590-WTP-3PS-MV00-T0002, Engineering Specification for Seismic Qualification Criteria for Pressure Vessels; 24590-WTP-3PS-MV00-T0003, Engineering Specification for Pressure Vessel Fatigue analysis; 24590-WTP-3PS-FB01-T0001, Engineering Specification for Structural Design Loads for Seismic Category III and IV Equipment and Tanks. System Description: 24590-LAW-3YD-LFP-00001, Rev. 1, System Description for LAW Melter Feed Process (LFP) System.
Summary of Assessment		For each item of "Information Assessed" (i.e., Criteria) on the following pages, the items listed under "Source of Information" were reviewed and found to furnish adequate design controls and requirements to ensure the design fully satisfies the requirements of Washington Administrative Code, WAC-173-303-640, *Dangerous Waste Regulations*.

References (cont'd)	Mechanical Data Sheets, Facility and Vendor Fabrication Drawings	Mechanical Data Sheets: 24590-LAW-MVD-LFP-00010, Rev. 3, Melter 1 Feed Prep Vessel (LFP-VSL-00001); 24590-LAW-MVD-LFP-00011, Rev. 3, Melter 2 Feed Prep Vessel (LFP-VSL-00003); 24590-LAW-MVD-LFP-00007, Rev. 3 Melter 1 Feed Vessel (LFP-VSL-00002); 24590-LAW-MVD-LFP-00008, Rev. 3 Melter 2 Feed Vessel (LFP-VSL-00004). Facility Drawings: 24590-LAW-P1-P01T-00001, Rev. 2, LAW Vitrification Building General Arrangement Plan at El (-)21'-0"; 24590-LAW-P1-P01T-00002, Rev. 5, LAW Vitrification Building General Arrangement Plan at El. 3'-0"; 24590-LAW-M5-V17T-00001, Rev. 5, Process Flow Diagram LAW Concentrate Receipt & Melter 1 Feed (System LCP, GFR, and LFP); 24590-LAW-M5-V17T-00002, Rev. 5, Process Flow Diagram LAW Concentrate Receipt & Melter 2 Feed (System LCP, GFR, and LFP); 24590-LAW-M6-LFP-00001, Rev. 4, P & ID-LAW Melter Feed Process System Melter 1 Feed Preparation and Feed; 24590-LAW-M6-LFP-00003, Rev. 4, P & ID-LAW Melter Feed Process System Melter 2 Feed Preparation and Feed. Vendor Fabrication Drawings (* Bechtel Code 1, 2, or 4 Drawings): 24590-CM-POA-MVA0-00002-03-22, Rev. 00F, General Arrangement Vessel LFP-VSL-00001 - Melter 1 Feed Prep VSL; 24590-CM-POA-MVA0-00002-03-23, Rev. 00G, Plan View Vessel LFP-VSL-00001 - Melter 1 Feed Prep VSL; 24590-CM-POA-MVA0-00002-03-04, Rev. 00F, General Arrangement Vessel LFP-VSL-00002 - Melter 1 Feed Vessel; 24590-CM-POA-MVA0-00002-03-01, Rev. 00I, Plan View Vessel LFP-VSL-00002 - Melter 1 Feed Vessel; 24590-CM-POA-MVA0-00002-03-11, Rev. 00F, General Arrangement Vessel LFP-VSL-00003 – Melter 2 Feed Prep VSL; 24590-CM-POA-MVA0-00002-03-12, Rev. 00G, Plan View Vessel LFP-VSL-00003 Melter 2 Feed Prep VSL; 24590-CM-POA-MVA0-00002-03-42, Rev. 00E, General Arrangement Vessel LFP-VSL-00004 – Melter 2 Feed Vessel; 24590-CM-POA-MVA0-00002-03-43, Rev. 00H, Plan View Vessel LFP-VSL-00004 Melter 2 Feed Vessel. * Bechtel Code 1 Drawing is an "as fabricated vendor drawing" approved/accepted by Bechtel. Bechtel Code 2 Drawing is an "as fabricated vendor drawing" approved (with comments)/accepted by Bechtel. Bechtel Code 4 Drawing is an "as fabricated vendor drawing" approved/accepted by Bechtel without review.

Information Assessed		Source of Information	Assessment
Design	Vessel design standards are appropriate and adequate for the vessel's intended use.	Specifications, Drawings, Mechanical Data Sheets, listed above under References; ASME Boiler and Pressure Vessel Code (BPV), Section VIII, Division 1, Rules for Construction of Pressure Vessels, American Society of Mechanical Engineers; UBC 1997, Uniform Building Code, International Conference of Building Officials; AISC Manual of Steel Construction, Allowable Stress Design, American Institute of Steel Construction.	The LAW Melter Feed Process (LFP) system includes two melter feed prep vessels (MFPV) [LFP-VSL-00001/3] and two melter feed vessels (MFV) [LFP-VSL-00002/4]. LAW concentrate will be transferred from the concentrate receipt vessels to the MFPVs where glass formers are added and mixed. The resulting batch of melter feed will be transferred from the MFPV to a MFV, then to a melter. The LFP vessels, LFP-VSL-00001/2/3/4 are identical vertical vessels. The drawings show that each vessel has a 132 in. ID and a height of 126 in. from bottom tangent line to top tangent line. The vessel's top and bottom Flanged & Dished (torispherical) heads are built with 1" thick plate (top head) and 3/4" thick plate (bottom head). The shell is made of 3/4" thick plate. Each vessel is supported on a cylindrical skirt (1/2" thick by approx. 2'-6" high) which is supported on a base plate anchored to the concrete floor at Elev. 2'-0". The vessels have internal equipment such as an agitator, pumps, and spray nozzles that are supported from the vessel's top. Material for the shell, top, and bottom heads is SA-240 316 stainless steel (with max. 0.030% carbon content, dual certified) and is hereafter referred to as 316 SS. The supporting skirt is specified as SA-240 304 stainless steel and is hereafter referred to as 304 SS. The total internal volume is to be approximately 9,120 gallons with an operating volume of approximately 7,690 gallons. The Mechanical Data Sheets identify the LFP components as seismic category SC-III and a quality level of Commercial Material. The LFP system vessels are designed to the ASME Section VIII, Division 1 rules (with UBC-97 implemented for seismic loads on the vessels) and the vessel supports are designed to ASME Section VIII, Division 1 and the AISC manual. Supplementary requirements are identified in the Engineering Specifications and include positive material identification, seismic load requirements, welding requirements, fabrication tolerances, NDE inspections and records, quality assurance requirements, and packaging, handling and storage requirements. These are appropriate and adequate design codes and standards for pressure vessels operating over the pressure and temperature ranges specified for these vessels.

Information Assessed		Source of Information	Assessment
Design (cont'd)	If a non-standard vessel is to be used, the design calculations demonstrate sound engineering principles of construction.	Mechanical Data Sheets, Material Requisition, and Drawings listed above under References; ASME Boiler and Pressure Vessel Code (BPV), Section VIII, Division 1, Rules for Construction of Pressure Vessels, American Society of Mechanical Engineers; 24590-CM-POA-MVA0-00002-02-03, Rev. 00F, Design Calculations for LFP-VSL-00001 and LFP-VSL-00003; 24590-CM-POA-MVA0-00002-02-01, Rev. 00E, Design Calculations for LFP-VSL-00002 and LFP-VSL-00004.	The LFP system vessels, LFP-VSL-00001/2/3/4 are standard ASME Section VIII vessels. The Mechanical Data Sheets require that the ASME Section VIII, Division 1 vessels be delivered after design, fabrication, inspection and testing with an ASME code stamp and that the vessels be nationally registered. Review of the Design Calculations and fabrication drawings show that the vessels have been designed as standard vessels per applicable requirements of the ASME Section VIII, Div. 1 code and additional requirements documents listed in the Material Requisition for the vessels demonstrating that sound engineering principles of construction and fabrication have been implemented for the vessels.

Information Assessed		Source of Information	Assessment
Design (cont'd)	Vessel has adequate strength, after consideration of the corrosion allowance, to withstand the operating pressure, operating temperature, and seismic loads.	Specifications, Material Requisition, Drawings, and Mechanical Data Sheets listed above under References; ASME Boiler and Pressure Vessel Code (BPV), Section VIII, Division 1, Rules for Construction of Pressure Vessels, American Society of Mechanical Engineers; ASME Boiler and Pressure Vessel Code (BPV), Section VIII, Division 2, Rules for Construction of Pressure Vessels – Alternative Rules, American Society of Mechanical Engineers; UBC 1997, Uniform Building Code, International Conference of Building Officials; 24590-CM-POA-MVA0-00002-02-03, Rev. 00F, Design Calculations for LFP-VSL-00001 and LFP-VSL-00003; 24590-CM-POA-MVA0-00002-02-01, Rev. 00E, Design Calculations for LFP-VSL-00002 and LFP-VSL-00004.	The Mechanical Data Sheets identify the vessel operating pressure and temperature ranges, the materials selected for the vessels, the corrosion/erosion allowances, the vessels' quality level and seismic category, and design requirements. The design specification for the vessels and ASME Section VIII, Div. 1 requires specific consideration of the operating pressures and temperatures and seismic loads in the design process and also requires that the corrosion/erosion allowance thickness be excluded from nominal vessel thickness when evaluating the adequacy of vessel components for these loads through the end of life. The Engineering Specification for Seismic Qualification Criteria for Pressure Vessels adopts ASME Section VIII, Div. 1 as the governing design code to address seismic design and analysis of the vessels with acceptance criteria in accordance with ASME Section VIII, Div. 2. Detailed requirements for seismic load determination are furnished in the Specification for Structural Design Loads for Seismic Category III & IV Equipment and Tanks. This specification specifies that the UBC 1997 code be used for seismic load determination for SC-III components. Design Calculations were reviewed and found to appropriately incorporate requirements of ASME Section VIII, Div.1/Div.2 and the design specifications. Calculations use the correct vessel material properties and include multiple configurations and load combinations for the vessels including maximum vessel temperatures and pressures, empty/full vessel, new/corroded walls, and seismic loads. The calculations correctly incorporate the materials, dimensions, corrosion allowances, and configurations identified in the engineering design requirements documents. Calculation results show that the vessels, nozzles, and welds have adequate strength after the appropriate consideration of corrosion/erosion allowance to withstand the applicable loads. Additionally, approval and acceptance of the vendor calculations and fabrication drawings by Bechtel National Inc. (BNI) is an added assurance that all applicable requirements pertaining to the design of the vessels have been met.

Information Assessed		Source of Information	Assessment
Foundation	Vessel foundation will maintain the load of a full vessel.	Specifications and drawings listed above under References; ASME Boiler and Pressure Vessel Code (BPV), Section VIII, Division 1, Rules for Construction of Pressure Vessels, American Society of Mechanical Engineers; AISC Manual of Steel Construction, Allowable Stress Design, American Institute of Steel Construction; 24590-WTP-DB-ENG-01-001, Rev. 1I, Basis of Design; 24590-CM-POA-MVA0-00002-02-03, Rev. 00F, Design Calculations for LFP-VSL-00001 and LFP-VSL-00003; 24590-CM-POA-MVA0-00002-02-01, Rev. 00E, Design Calculations for LFP-VSL-00002 and LFP-VSL-00004.	The Engineering Specification for Pressure Vessel Design and Fabrication requires the use of ASME Section VIII, Division 1 and the AISC manual for design of the vessel supports. These codes ensure an adequate design for the vessel supports. Design Calculations include the vessel skirt, base plate, and anchor bolts. These calculations were reviewed and found to appropriately evaluate the support system of the vessels incorporating the requirements of ASME Section VIII, Div.1 and the design specification documents including vessel support materials, fluid specific gravity, new/corroded vessel weights and seismic loading. The calculations correctly incorporate the dimensions and configurations identified in the vessel fabrication drawings. Calculation results show acceptable stresses on the tank supports. The Basis of Design document requires that the foundation underlying the vessel support must be adequate to support the loads from the full vessel however the adequacy of the underlying foundation is not part of this integrity assessment. The foundation adequacy is part of a separate integrity assessment report for the Secondary Containment of the LFP vessels.
	If in an area subject to flooding, the vessel is anchored.	Specifications and Mechanical Data Sheets listed above under References.	The Specification of Pressure Vessel Design and Fabrication requires supports and anchors to secure the buoyant vessel in case the vessel is empty and submerged to the level indicated in the Mechanical Data Sheets. The Mechanical Data Sheets for these vessels do not indicate any such conditions; therefore, the flooding consideration does not apply.
	Vessel system will withstand the effects of frost heave.	24590-WTP-DB-ENG-01-001, Rev. 1I, Basis of Design.	The Basis of Design document requires that all structural foundations extend a distance below grade that exceeds the 30" depth of the frost line. The vessels are located inside/interior of the building at above grade (Elevation 2'-0" level) and the building's lower level floor is at Elevation (-)21'-0", therefore, the vessel system is not subject to frost heave.

Information Assessed		Source of Information	Assessment
Waste Characteristics	Characteristics of the waste to be stored or treated have been identified (ignitable, reactive, toxic, specific gravity, vapor pressure, flash point, storage temperature)	Mechanical Data Sheets listed above under References; 24590-LAW-N1D-LFP-00004, Rev. 2, Corrosion Evaluation LFP-VSL-00001/3 Melter 1 & 2 Feed Preparation Vessels; 24590-LAW-N1D-LFP-00006, Rev. 0, Corrosion Evaluation LFP-VSL-00002/4 Melter 1 & 2 Feed Vessels; 24590-WTP-PER-PR-03-001, Rev. 1, Prevention of Hydrogen Accumulation in WTP Tank Systems and Miscellaneous Treatment Unit Systems; 24590-WTP-PER-PR-03-002, Rev. 2, Toxic Vapors and Emissions from WTP Tank Systems and Miscellaneous Treatment Unit Systems.	The Mechanical Data Sheets identify the waste process conditions and design parameters of the vessels including the waste specific gravity, storage temperatures and pressures. The Corrosion Evaluation documents address the pH range and chemical composition of the waste to select appropriate vessel materials and specify the corrosion/erosion allowances. Waste characteristics that are hazardous, such as ignitability, reactivity and toxicity are appropriately addressed in the Toxic Vapors and Emissions document and Prevention of Hydrogen Accumulation document. These two documents do not specifically list these vessels to exhibit any hazardous characteristics.
	Vessel is designed to store or treat the wastes with the characteristics defined above and any treatment reagents.	System Description listed above under References; 24590-LAW-N1D-LFP-00004, Rev. 2, Corrosion Evaluation LFP-VSL-00001/3 Melter 1 & 2 Feed Preparation Vessels; 24590-LAW-N1D-LFP-00006, Rev. 0, Corrosion Evaluation LFP-VSL-00002/4 Melter 1 & 2 Feed Vessels.	The Corrosion Evaluations demonstrate that the vessels are designed to process the wastes as discussed above. The System Description discusses normal and abnormal operations for the LFP vessels. Compatible fluid (demineralized water) will be used for flushing/rinsing or wash downs of the vessels. The 316 SS material selected for the vessels is appropriate for the waste to be stored and the rinsing fluid.
	The waste types are compatible with each other.	System Description listed above under References.	The System Description for the LAW Melter Feed Process (LFP) does not describe any operations where incompatible wastes are mixed in these vessels for processing. The LFP vessels function primarily to receive LAW concentrate waste from the concentrate receipt vessels to mix with glass formers prior to transfer to the melters. No other wastes are used in these vessels.

Information Assessed		Source of Information	Assessment
Corrosion Protection	Vessel material and protective coatings ensure the vessel structure is adequately protected from the corrosive effects of the waste stream and external environments (expected to not leak or fail for the design life of the system)	Drawings and Mechanical Data Sheets listed above under References; 24590-LAW-N1D-LFP-00004, Rev. 2, Corrosion Evaluation LFP-VSL-00001/3 Melter 1 & 2 Feed Preparation Vessels; 24590-LAW-N1D-LFP-00006, Rev. 0, Corrosion Evaluation LFP-VSL-00002/4 Melter 1 & 2 Feed Vessels.	The Corrosion Evaluations and Mechanical Data Sheets show that the LFP Melter Feed Prep vessels (LFP-VSL-00001/3) and Feed Vessels (LFP-VSL-00002/4) normally operate at a pH of 13.9 to 14.7 with an operating temperature of 98 °F and an operating pressure of 0.07 psig. The vessels are designed for a maximum temperature of 150°F and a maximum pressure of 15 psig. The material selection corrosion considerations include the effects of general corrosion, pitting corrosion, stress corrosion cracking, galvanic corrosion, and erosion. The material selected for the vessels is 316 SS with a corrosion/erosion allowance of 0.04 in. for the upper head and 0.125 in. for the bottom head and shell which is adequate and appropriate for the waste to be stored. The material for the vessel support is 304 SS. The drawings show that the LFP vessels are located in LAW cells L-0123 and L-0124 at Elevation 2'-0". These cells are equipped with a sump to pump out any leaked fluid. Therefore, the cells should remain dry during normal operations which will limit external corrosion of the vessels and their supports over the facility design life of 40 years.
Corrosion Allowance	Corrosion allowance is adequate for the intended service life of the vessel.	Mechanical Data Sheets listed above under References; 24590-LAW-N1D-LFP-00004, Rev. 2, Corrosion Evaluation LFP-VSL-00001/3 Melter 1 & 2 Feed Preparation Vessels; 24590-LAW-N1D-LFP-00006, Rev. 0, Corrosion Evaluation LFP-VSL-00002/4 Melter 1 & 2 Feed Vessels; 24590-CM-POA-MVA0-00002-02-03, Rev. 00F, Design Calculations for LFP-VSL-00001 and LFP-VSL-00003; 24590-CM-POA-MVA0-00002-02-01, Rev. 00E, Design Calculations for LFP-VSL-00002 and LFP-VSL-00004.	The bases for the LFP vessel's material selection and corrosion allowance are furnished in the Corrosion Evaluations. Selection of 316 SS material with a corrosion/erosion allowance of 0.04 in. for the upper head and 0.125 in. for the bottom head and shell for a service life of 40 years is adequate and appropriate. The material selections and corrosion/erosion allowances are correctly carried forward to the Mechanical Data Sheets and are used in the vessel Design Calculations consistently and correctly. A corrosion allowance for the supports is not identified but as mentioned above, the cells should remain dry preventing corrosion of the supports. Therefore, the 304 SS vessel supports are adequate for this application.

Information Assessed		Source of Information	Assessment
Pressure Relief	Pressure controls (vents and relief valves) are adequately designed to ensure pressure relief if normal operating pressures in the vessel are exceeded.	Drawings and System Description listed above under References.	The drawings and System Description document show and/or describe that the LFP Vessels, LFP-VSL-00001/2/3/4 are designed with an unrestricted overflow through a 4" diameter line. The MFVs and MFPVs overflow to a common overflow header to the C3/C5 Drains/Sump Collection Vessel (RLD-VSL-00004) located at Elevation (-) 21'-0". A high-high tank level alarm and trip is designed to prevent the contents from reaching the overflow. The vessels are also connected to the LAW vessel vent system which includes backup power if power is lost during normal operations and a backup fan if one of the two ventilation fans fails. A high pressure alarm will alert operations if the headspace pressure is approaching the surrounding process cell pressure. All above listed features will prevent the over pressurization of the LFP vessels.

Master Distribution Schedule for WTP Project Subcontract Management Group

SUBMITTAL TRANSMITTAL:	☐ First Submittal	☐ Re-Submittal	☐ QVRP Package
☐ No Review Required	☐ No Review Required Re-Submittal	☐ Submittal Supplement	
CORRESPONDENCE:	☒ With Attachment	☐ W/O Attachment (letter only)	
	☐ Fax as Original (Letter Only)	☐ Fax as Original (With Attachment)	
☐ Pre-Award/Award Package	☐ Executed Change Order Package		
☐ Executed Amendment Package	☐ Back Charge		

Subcontract Number:	24590-CM-HC4-HXYG-00211
Subcontract Title:	Tank Integrity Design Assessments by IQRPE
Subcontractor Name:	AREVA NC, Inc.
Subcontract Administrator:	Jean Renner

PDC Document Number	Rev	Document Title	Rev
139507	0	AREVA-07-074 transmitting AREVA-IA-100, Rev. 0 "Structural Integrity Assessment for LAW Melter Feed Process System Melter Feed Prep Vessels (LFP-VSL-00001/3) and Melter Feed Vessels (LFP-VSL-00002/4)	0

INCOMING DISTRIBUTION

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			x				

OUTGOING DISTRIBUTION FOR RETURNED STATUSED STICKER SUBMITTALS

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PDC	MS9-A	X					

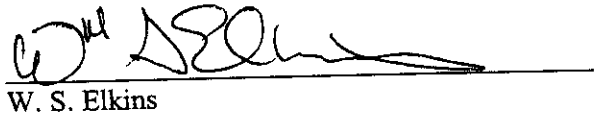
Attachment 2
07-ESQ-140

Bechtel National, Inc. Certification Statement

Bechtel National, Inc. Certification

The following certification statement is provided consistent with Contract No. DE-AC27-01RV14136, Section H.26, Environmental Permits, paragraph (g) for the submittal of the Hanford Facility Resource Conservation and Recovery Act Permit Modification Notification Form 24590-LAW-PCN-ENV-06-012.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.



9 AUG 2007

W. S. Elkins
Project Director

Date